

Evaluation Report

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GSW 561210 HLC SHALLOW WELL JET PUMP

A Co-operative Program Between



GSW 561210 HLC SHALLOW WELL JET PUMP

MANUFACTURER:

GSW Limited
599 Hill Street West
Fergus, Ontario
N1M 2X1

DISTRIBUTORS:

Contact the Manufacturer for names of Distributors

RETAIL PRICE: \$345.00 (March, 1980, f.o.b. Fergus, Ontario).

SUMMARY AND CONCLUSIONS

Measured water flow of the GSW HLC jet pump varied from 32 L/min (7 gal/min) to 9 L/min (2 gal/min) over a range of total heads from 8 to 43 m, (26 to 141 ft) with a 4.5 m (15 ft) suction lift. At peak efficiency, flow was 20% lower than the manufacturer's published data.

Peak overall efficiency of 13.8% occurred at a discharge head of 28 m (92 ft) with a flow of 28.4 L/min (6.2 gal/min). The corresponding pump power output was 0.15 kW.

The owner's manual supplied with the pump was clearly written, and contained comprehensive installation, electrical, priming, maintenance and troubleshooting instructions. A pressure switch was supplied with the pump.

RECOMMENDATIONS

No need for recommendations was apparent.

Chief Engineer -- E. O. Nyborg
Senior Engineer -- J. C. Thauberger
Project Engineer: Gregory R. Pool

THE MANUFACTURER STATES:

We agree that the loss of prime experienced in your test was not related to the pump. A faulty foot valve would be the most likely cause.

Note: This report has been prepared using SI units of measurement. A conversion table is given in APPENDIX II.

GENERAL DESCRIPTION

The GSW HLC is a single stage, shallow well jet pump, with a 25 mm (nominal 1 inch NPT) inlet and a 19 mm (nominal 0.75 inch NPT) outlet, designed for use in wells up to 7.5 m (25 ft) deep. It is powered by a 115/230V, 0.37 kW General Electric electric motor.

Detailed specifications are given in APPENDIX I.

SCOPE OF TEST

The performance characteristics of the GSW HLC were determined with water, over a full range of discharge heads and suction lifts, using a standard pump testing procedure¹. In addition, ease of installation, the suitability of the owner's manual and the safety of the pump were evaluated.

RESULTS AND DISCUSSION

PERFORMANCE CHARACTERISTICS

Pump performance characteristics, over a range of total heads² from 5 to 48 m (16 to 158 ft) of water, are given in FIGURE 1, for a 4.5 m (15 ft) suction lift. Maximum flow at 5 m (16 ft) total head was 32 L/min (7 gal/min) while flow ceased at a total head of 48 m (158 ft). The manufacturer's published performance data indicated higher flows than those obtained, over the full range of total heads. At the point of peak overall efficiency, the measured flow data were 20% lower than that indicated by the manufacturer. The peak efficiency, occurring at a discharge head of 28 m (92 ft), was 13.8%.

The corresponding flow was 28.4 L/min (6.2 gal/min).

Maximum pump power output was 0.15 kW, occurring at the peak efficiency point, with a corresponding current draw of 4.9A at a 230V line voltage.

EASE OF INSTALLATION

One street elbow was required to connect the suction pipe to the pump inlet. A plastic foot valve was supplied with the pump, and was installed on the lower end of the suction pipe throughout the test. Access to the inlet and outlet, for plumbing connections, was convenient.

A priming plug was conveniently located on top of the pump body. Priming of the pump required filling the pump body with water three or four times. The pump consistently lost its prime after standing overnight without being used. This was probably due to a defective foot valve.

OPERATOR'S MANUAL AND SAFETY ASSESSMENT

The owner's manual was clearly written and contained comprehensive installation, electrical, priming, maintenance and troubleshooting instructions. Wiring and plumbing recommendations were provided. If the instructions were followed closely, a safe electrical connection could be made. The pump motor had CSA approval.

¹PAMI T7821, Detailed Test Procedure for Domestic Water Pumps.

²Total head is the sum of the discharge head and the suction lift.

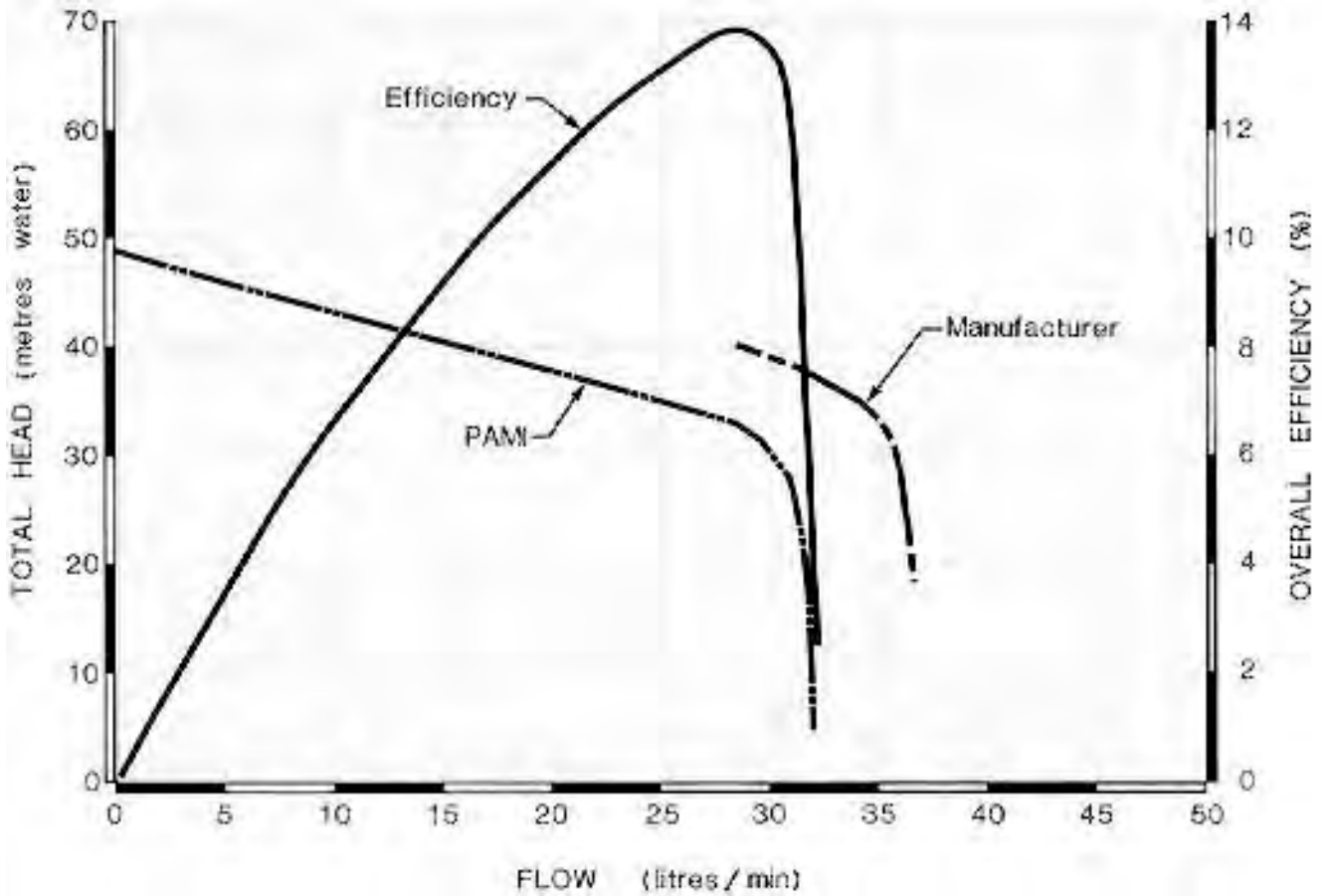


FIGURE 1. Performance Characteristics.

APPENDIX I

SPECIFICATIONS

PUMP:

-- make GSW
 -- model HLC (561210)
 -- serial no. 12-78

MOTOR:

-- make Canadian General Electric
 -- model 3J694Ax11
 -- power rating 0.37 kW
 -- voltage rating 115/230 V
 -- current rating 8.2/4.1 A
 -- service factor 1.6
 -- speed 3450 rpm

OVERALL DIMENSIONS:

-- length 515 mm
 -- width 220 mm
 -- height 260 mm

TOTAL WEIGHT:

16.3 kg

INLET:

-- location side of ejector body
 -- nominal size 25 MM (1 inch NPT)

OUTLET:

-- location top left side
 -- nominal size 19 mm (0.75 inch NPT)

FOOT VALVE:

-- type plastic
 -- nominal size 25 mm (1 inch NPT)

PRESSURE REGULATOR SWITCH:

-- make Pumptrol -- Square 'D'
 -- switching pressure range 140 - 280 kPa

APPENDIX II

CONVERSION TABLE

1 litre (L) = 0.22 Imperial gallon (gal)
 1 kilowatt (kW) = 1.3 horsepower (hp)
 1 metre water (m) = 1.4 pounds force/square inch (psi)
 1 metre water (m) = 3.3 feet water (ft)
 1 kilopascal (kPa) = 0.15 pounds force/square inch (psi)

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